

IN THE CLAIMS:

1. (Currently Amended): Configuration for the acquisition and/or monitoring of medical data, in particular the state of the cardiovascular and pulmonary system, blood values or blood composition, ~~characterised~~ characterized by at least one measuring sensor for the acquisition of the medical data such as the state of the cardiovascular system, etc. of a person comprising at least one light source which can emit light at least at two wavelengths, as well as at least one light receiver for determining the light transmitted and/or reflected through a tissue portion of a person or an animal further comprising means in order to increase the optical Signal-to-Noise and/or Signal-to-Background ratio.

2. (Original): Configuration according to claim 1 and at least one beam shaping optical element to direct the emitted light into a human or animal tissue and the light receiver.

3. (Currently Amended): Configuration according to claim 2, ~~characterised~~ characterized in that the beam shaping element is a diffractive or refractive beam shaping element.

4. (Currently Amended) Configuration according to ~~one of the claims 1 to 3,~~ ~~characterised~~ claim 1, characterized in that at least two light emitting sources, such as LEDs, are arranged and that two beam shaping elements are arranged to direct the emitted light into the same area within the human or animal tissue and that the light receiving element is a photo detecting element.

5. (Currently Amended): Configuration for the acquisition and/or monitoring of medical data, in particular the state of the cardiovascular and pulmonary system, blood values or blood composition, ~~characterised~~ characterized by at least one measuring sensor for the acquisition of the medical data such as the state of the cardiovascular system, etc. of a person comprising at least one light source which can emit light at least at two wavelengths, as well as at least one light receiver for determining the light transmitted and/or reflected through a tissue portion of a person or an animal and at least one light trap and/or optical wavelength filter.

6. (Currently Amended): Configuration according to claim 5, ~~characterised~~ characterized in that the optical wavelength filter is an optical double band ~~pas~~ pass filter.

7. (Currently Amended): Configuration according to claim 5, ~~characterised~~ characterized in that the light receiver has such a limited detection sensitivity that the two frequencies of the light source are within the sensitivity area of the receiver.

8. (Currently Amended): Configuration according to ~~claims 1 to 7~~, ~~characterised~~ claim 1, characterized in that at least a wavelength filter and/or a light trap, such as geometrical baffles, are adapted to suppress, by geometric and/or optical means, the parasitic contribution of environmental radiation in order to increase and ~~stabilise~~ stabilize the signal/background ratio versus environmental conditions.

9. (Currently Amended): Configuration for the acquisition and/or monitoring of medical data, in particular the state of the cardiovascular and pulmonary system, blood values or blood composition, etc., ~~characterised~~ characterized by at least one measuring sensor for the acquisition of the medical data, such as the state of the cardiovascular and pulmonary system, etc. of a person comprising at least one light source which can emit light at least at two wavelengths, as well as at least one light receiver for determining the light transmitted and/or reflected through a tissue portion of a person or an animal,

[[-]] at least one beam shaping optical element to direct the emitted light into a human or animal tissue and the light receiver, and

[[-]] at least one light trap such as geometrical baffles and/or an optical wavelength filter, such as a double band pass filter.

10. (Currently Amended): Configuration according to ~~claims 1 to 9~~ claim 1, comprising light source amplitude modulating or light source modulating means to shift the frequency of the emitted light.

11. (Original): Configuration according to claim 10, comprising a light source amplitude modulating means to modulate the frequency of the emitted light. in a frequency range substantially outside of frequency of noise and/or environmental signals.

12. (Currently Amended): Configuration according to claim 10 ~~or 11~~, comprising means for light source amplitude modulation or light source modulating means to shift the frequency of the emitted light in a range where environmental disturbances are substantially neglectable.

17. (Currently Amended): Pulsoximetric sensor, including a configuration according to ~~one of the claims 1 to 16~~ claim 1.

18. (Currently Amended): Method for measuring and/or monitoring of medical data, in particular the state of the cardiovascular and pulmonary system, blood values or blood composition, etc., ~~characterised~~ characterized in that within a pulsoximetric sensor from at least one light source, such as an LED, at least at two wavelengths, light is emitted, the light is transmitted and/or reflected through a tissue portion of a person or an animal and is received by at least one light receiver for determining the light transmitted and/or reflected through the tissue portion, the light from the light emitting source, such as the LED or the LEDs, *is* directed by using beam shaping elements, such as e.g. diffractive or refractive beam shaping elements into the human tissue and photo detecting element.

19. (Currently Amended) Method for measuring and/or monitoring or medical data, in particular the state of the cardiovascular and pulmonary system, blood values or blood composition, etc., ~~characterised~~ characterized in that within a pulsoximetric sensor from at least one light source such as an LED, at least at two wavelengths, light is emitted, the light is transmitted and/or reflected through a tissue portion of a person or an animal and is received by at least one light receiver for determining the light transmitted and/or reflected through the tissue portion, the light from the light emitting source, such as the LED or the LEDs, is directed through a light tray and/or an optical wavelength filter, wavelength filter preferably is an optical double band pass filter adapted to the power spectrum of the band limited light sources such as LEDs.

20. (Currently Amended): Method for measuring and/or monitoring of medical data, in particular the state of the cardiovascular and pulmonary system, blood values or blood composition, etc., ~~characterised~~ characterized in that within a pulsoximetric sensor from at least one light source, such as an LED, at least at two wavelengths, light is emitted, the light is transmitted and/or reflected through a tissue portion of a person or an animal and *is* received by at least one light receiver for determining the light transmitted and/or reflected through the tissue portion, the at least one light source is pulsed operated with a phase shifting or modulation of the frequency, so that the frequency of the emitted light is in a range substantially outside of the frequency of noise and/or environmental signals, the pulsed light with the mentioned frequency is received by the, at least one, light receiver after passing through the tissue portion and finally a reversed phase shifting or modulation is executed to calculate the real values of the pulsoximetric measurement.

21. (Currently Amended) Use of the configuration according to ~~one of the claims 1 to 16~~ claim 1, for pulsoximetric measurements, which means for the non-invasive monitoring of pulsation, oxygen saturation, arterial carbon dioxide partial tension and/or content of blood sugar in arterial human or animal blood.